

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
7 August 2003 (07.08.2003)

PCT

(10) International Publication Number  
**WO 2003/064721 A3**

(51) International Patent Classification<sup>7</sup>: C23C 14/24,  
14/34, H01J 27/02, 27/22, 37/34

(21) International Application Number:  
PCT/US2003/002632

(22) International Filing Date: 30 January 2003 (30.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
10/058,340 30 January 2002 (30.01.2002) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC,  
VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,  
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

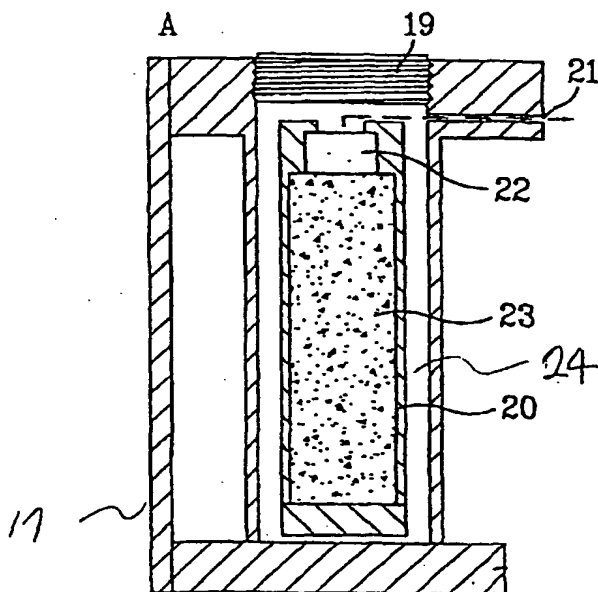
Published:

— with international search report

(88) Date of publication of the international search report:  
25 March 2004

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: CESIUM VAPOR EMITTER AND METHOD OF FABRICATING THE SAME



(57) Abstract: The specification and drawings describe and show embodiments of the present invention in the cesium vapor emitter and the method of fabricating the same. More specifically, the cesium vapor emitter of the present invention includes a housing having at least one chamber therein and at least one channel, wherein the channel has a size wide enough to introduce a desired amount of cesium vapor, a cesium reservoir placed in the chamber, wherein the cesium reservoir is filled with a cesium slurry and a plug located between the cesium slurry and the channel, thereby emitting the cesium vapor from the cesium slurry through the channel, and a stopper securing the cesium reservoir in the chamber, so that the cesium vapor is emitted through the channel.

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## INTERNATIONAL SEARCH REPORT

Internat. Application No.

PCT/US 03/02632

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C23C14/24 C23C14/34 H01J27/02 H01J27/22 H01J37/34

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C23C H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KIM S I ET AL: "A NEW SOLID-STATE CESIUM ION SOURCE", JOURNAL OF APPLIED PHYSICS, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, VOL. 67, NR. 6, PAGE(S) 2704-2710 XP000106023 ISSN: 0021-8979 page 2705, left-hand column, paragraphs A.1.-3.	27-30
A	WO 00 68451 A (SKION CORP) 16 November 2000 (2000-11-16) page 7, line 7 -page 10, line 30; figures 4-8	1-26
A	US 5 466 941 A (KIM SEONG I) 14 November 1995 (1995-11-14) column 1, line 48,49 column 3, line 4-23; figures 1,2	1-26
-/-		

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

6 October 2003

Date of mailing of the international search report

20. 10. 03

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## INTERNATIONAL SEARCH REPORT

Inte. Application No

PCT/US 03/02632

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>SOUZIS A E ET AL: "SOLID STATE CESIUM ION GUNS FOR SURFACE STUDIES", REVIEW OF SCIENTIFIC INSTRUMENTS, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, VOL. 61, NR. 2, PAGE(S) 788-792 XP000103471 ISSN: 0034-6748 page 1, left-hand column, paragraph 3 -page 1, right-hand column, paragraph 2 page 2, left-hand column, paragraphs 1,2; figure 1</p>	1-26
A	<p>US 4 783 595 A (SEIDL MILOS) 8 November 1988 (1988-11-08) column 5, line 3-6 column 7, line 50-56; figure 1</p>	1-26
A	<p>KIM S I ET AL: "CESIUM ION TRANSPORT ACROSS A SOLID ELECTROLYTE-POROUS TUNGSTEN INTERFACE", JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY: PART A, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, VOL. 7, NR. 311, PAGE(S) 1806-1809 XP000045608 ISSN: 0734-2101 page 1806, left-hand column, last paragraph -page 1806, right-hand column, paragraph 1</p>	27-30
A	<p>KIM S I ET AL: "SOLID-STATE CESIUM ION GUN FOR ION BEAM SPUTTER DEPOSITION", REVIEW OF SCIENTIFIC INSTRUMENTS, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, VOL. 63, NR. 12, PAGE(S) 5671-5673 XP000330431 ISSN: 0034-6748 page 5671, left-hand column, line 1-7</p>	27-30

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 03/02632

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-26

Claims 1 and 19 define a cesium vapor emitter (claim 1) and a method of fabricating said cesium vapor emitter (claim 19).

2. Claims: 27-30

Claim 27 defines a method of fabricating a stabilized cesium pellet.

# INTERNATIONAL SEARCH REPORT

Intern. Application No

PCT/US 03/02632

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0068451	A	16-11-2000	US 2002070357 A1 13-06-2002
			TW 499495 B 21-08-2002
			WO 0068451 A2 16-11-2000
US 5466941	A	14-11-1995	NONE
US 4783595	A	08-11-1988	NONE

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